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Engaging with the Politics of Determinist Environmental Thinking

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Forum

Environmentalist thinking and/in geography

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Abstract: In recent years, a new type of determinist environmental thinking has emerged. It can be understood to be one strand in a much broader realm of 'environment talk'. Many human geographers have expressed a combination of scepticism and surprise at the apparently inexorable rise of the neo-environmentalist arguments which differ from early twentieth-century environmental determinism yet continue to draw upon biologistic accounts of human culture. Although geography has in recent years been at the forefront of the academic discussions of environmental change in relation to science, institutional context, political costs and human impacts, the discipline nevertheless has to contend with a widespread misperception of the place of environment in human affairs and the world's future. This Forum discusses the context for the rise of, and consequences of, determinist accounts.

Key words: geographical explanations, global development, global inequality, human-animal relations, neo-environmental determinism, political ecology.

Introduction: the status of the 'environment' in geographical explanations

The immediate stimulus for this Forum is the perception among a number of geographers across the subfields of their discipline that 'the environment' has in certain spheres been brought into arguments that attribute it with powerful and singular causal power; and, moreover, that these arguments have been associated with the discipline in ways that have various effects on the nature of geographical explanations and their public prominence.

In recent years a certain type of determinist environmental thinking has emerged. It can be understood to be one strand in a broader discourse of what we can call academic 'environment talk' (which includes political ecology, environmental history, climatology, and many others). Yet this 'neo-environmental determinism' (Sluyter, this Forum) is characterized by an emphasis on the core explanatory power of non-human/non-animal components of the biophysical sphere in shaping human outcomes (in relation to development, disease, conflict, responses to climate change, etc). Whereas other forms of environmental talk, such as political ecology (eg, Peet and Watts, 2004), highlight the contingent historically and geographically specific cultural meanings and

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human engagements with environmental processes, neo-environmental determinism claims to discern invariable dynamics between (certain kinds of) society and 'the' environment. These determinist frameworks differ from early twentieth-century versions of environmental determinism in a number of ways.[1] First, in intellectual terms, recent determinisms have emerged in the context of widespread knowledge of Darwinian evolution, atmospheric and climate science, 'new genetics', and detailed ecological and social knowledges, all of which create a more knowledge-rich starting point (while also providing the basis of robust critiques of these same environmental determinisms; see below). Second, in terms of sociopolitical contexts, current environmental determinisms reflect subtle arguments about 'cultural' determinism, rather than crass racial ideologies. However, as Felipe Fernández-Armesto makes clear (this Forum), the concept 'culture' can be used *as if it were* equivalent to a biologically determined entity, and he thereby reveals the biologisms that underlie certain strands of neo-environmental determinist thinking.

Many human geographers have expressed a combination of scepticism and surprise at the apparently inexorable rise of such arguments. Johnston (2007) calls Jared Diamond – whose books have often provided a lightning rod for critique and debate – 'a late interloper … [but] not [a geographer] really'. Yet there has been a surprising lack of discussion about the implications of the rise of neo-environmental determinist arguments. Geographical journals have tended to engage with these arguments through book reviews, as well as indirectly in articles presenting detailed analyses of environment-society relations (as indeed do numerous books). Yet relatively little has been written systematically about these arguments in terms of their validity (or lack of it) within the discipline, about their implications for human geographers' and environmentalists' attempts to bring non-determinist research to a public audience, and the potential long-term consequences for the discipline of these high-profile representations of 'geography'.

Hence the diverse contributors to this Forum were invited to engage in a broader way than they might in scholarly writing and teaching with questions about the politics, consequences and intellectual basis of these arguments, and their connection with their own fields of inquiry. From varying perspectives, the contributors address questions such as the following. Should geography engage with environmentally determinist arguments in the public arena and other disciplines? If so, how and to what ends? How do existing forms of environmental determinism affect the content and form of knowledges produced by human and physical geographers broadly defined? Environmental determinist thinking, of course, comprises a number of differing arguments, fields of inquiry, and publicly accessible discourses – while some contributors mention specific names, others address themselves to what they perceive to be wider, more diffuse influences of neo-environmental determinism on public debate.

As noted above, Jared Diamond occupies a specific position in these debates, not only because of the fame and high sales of his books, but also because of his appointment to and profile in, professional academic geography. Jared Diamond has been appointed to the UCLA Geography Department, and gave one of the plenaries at the 2007 American Association of Geographers' annual meeting, in which he rehearsed the arguments developed in his best-selling books *Guns, germs and steel* and *Collapse*. Although Diamond always attributes environmental factors with a partial role in societal change, his discussion tends to highlight these factors at the cost of others. Yet it is invidious to single out one individual, as similar arguments (albeit not based on Diamond's zoological research) have also been gaining a wider currency within public understandings of what 'geography' is (eg, Posner, 2004; cf. Geertz, 2005). Arguments about conflict in Sudan

and elsewhere in Africa are increasingly emphasizing the role of climate change, downplaying the political interpretations that have long held sway in the scholarly understandings of famine, conflict and land shortages (UNEP, 2007; de Waal, 2007).

One area in which environmentally determinist arguments have gained public – although not always professional – salience is in relation to global issues and inequality. Ian Simmons (Simmons, this Forum) points out that geographers need global narratives because of the scale and predicted transformative power of global climate change. Separately, however, Andrew Sluyter and Elizabeth Watson each point out how not all global narratives are the same. As neo-environmental determinist accounts of global climate change offer universalizing explanations, other types of explanation – those that point to legacies of colonialism, racially segregated labour markets, or locally motivated political conflict – fade from view (Sluyter, this Forum; Watson, this Forum). Neo-environmental determinist narratives risk obscuring the interactions between local, regional, and specific global processes by highlighting supposedly worldwide processes, thereby doing an injustice to the extensive work in geography on scalar interactions. Yet, in a universalizing picture, the 'environment' – in the sense of desertification, drought, disease, and so on – gains a spurious ranking in an explanatory framework, while other factors such as society, culture, politics, geopolitical relations, and history are pushed into the background (compare Adams and Mulligan, 2003). Tanya Murray Li suggests that 'engaging simplifications' may have powerful social and political consequences, as they appear to offer a route-map for politicians and planners alike (Li, 2002).

To the extent that the discipline of geography articulates an account of global climate change and its various local and regional ramifications (from melting polar ice to agrarian transformations in the Sahel), it too is entangled in the power of such engaging simplifications. In other words, geography's profile – as a field of research endeavour, as a claimant on public funds, and as a 'relevant' subject in instrumentally orientated times – rests in part on its credentials as a contributor to the global climate change debate. The challenge for geography lies in creating a discipline that reflects the complexity of – rather than simplifies – accounts of the world, without losing sight of a synthetic account.

As noted above, neo-environmental determinisms often draw on a biologistic model of human culture. They see the concept as a tool by which to differentiate one social group from another in explanations of relative flexibility in face of stress, or adaptability to new opportunities. While such accounts have certainly replaced nineteenth- and early twentieth-century racial explanations (cf. Sluyter, this Forum), the denial of the powerful hierarchies of (racial/cultural) value and the strongly influential histories and geographies of colonialism and imperialism speak more to progress in laboratory science than to the careful, extensively documented and appropriately researched findings of hundreds of social scientists (among them geographers) over the past 30 years (Kobayashi and Peake, 2000). By drawing on biological science rather than social science, such accounts fall prey to the engaging simplifications of Malthusian arguments (Simmons, this Forum). Yet even laboratory science and its findings are only selectively drawn upon. For instance, extensive work on the lack of easy boundaries between human and animal societies and cultures (documented in Fernández-Armesto, this Forum) highlights the need to rethink our category of 'culture'. More importantly in the context of this Forum, we need to acknowledge that history is the explanatory timeline relevant for human-environment relations, rather than evolutionary time.

The Forum is in three parts. The first comprises a discussion of the various ways in which neo-environmental determinism is affecting geographers' sense of their explanatory frameworks in the classroom, and in public debates. Through books such as

Jared Diamond's *Collapse* (2005) or Bjørn Lomborg's *The skeptical environmentalist* (2001), professional geographers are reminded of the myriad ways in which 'big' global environmental issues bring students into our departments, drive high-level policy debates, and remind us how our own personal research interests only too frequently remain constrained in scope and scale contributing incrementally to a wider project of expanding and transmitting knowledge (Castree *et al*., 2008). In Part II, there is a direct refutation of two forms of determinism shaping current debate: first, the idea that evolution determines the circumstances of human groups today and, second, the notion that human 'cultures' correspond analogously to organisms, and are thus subject to evolutionary pressures. As Felipe Fernández-Armesto argues, neither of these doctrines is helpful in offering insight or explanatory frameworks for social change, nor environment-society relations. In other words, although social scientists have Darwinian evolutionary theory in their toolkit as a broad intellectual setting, they find its insights too broad-brush as a proximate framework to understand, to pick a random example, how indigenous forest dwellers in Bolivia negotiate with state conservation initiatives. In Part III, the context in which neo-environmental determinism emerged is examined. The neoliberal political economy of the North in combination with the South's continued underdevelopment are suggested as factors behind the public salience of neo-environmentalist accounts.

This Forum provides no straightforward response to the rise of neo-environmental determinism. While certain contributors are keen to engage students in the debate, others are more concerned to raise issues with university administrators and professional bodies. But the Forum does, we hope, contribute to what is likely to be an ongoing, and at times heated, discussion. It offers us some pointers about the stakes involved in the rise of neo-environmental determinism, some of the intellectual and institutional consequences. It also suggests that we need constantly to interrogate and evaluate critically the ways in which forms of knowledge gain power. Without advocating that geography engage in other 'simplifications', the contributors to this Forum imply that there is still a job to be done to make *other* complex stories accessible and powerful in public debates.

In conclusion, although geography has in recent years been at the forefront of the academic discussions of environmental change in relation to science, institutional context, political costs and human impacts, the discipline nevertheless has to contend with a widespread misperception of the place of environment in human affairs and the world's future. Given its research strengths and professional standing, geography – and geographers – can directly engage with and challenge such views, contributing to urgent conversations in academia and policy arenas alike. This public role must, however, be counterbalanced by an awareness of its own institutional and professional investments in the field of environmental studies. The power of 'environmental big-talk' to raise geography's profile, particularly perhaps in countries where it has not had a large presence in universities, must be weighed against the risk of simplifying the causal drivers behind global environmental and climate changes.

Sarah A. Radcliffe
University of Cambridge

Part I: Types of determinist environmental thinking

1 Convenient examples for inconvenient truths

In a Masters on Environment, Society and Development that I co-teach with Tim Bayliss-Smith at the Department of Geography, the students are asked to read and debate Jared Diamond's *Collapse* (2005). Student criticisms of his thesis often start with a questioning of the way Diamond selects his examples. They suggest that perhaps he chooses his

cases to support his storyline. Students also comment that, although he gives credit to non-environmental factors in his five-point framework for explaining historical change and disintegration of societies, all too often the cases are structured in a way that relegates non-environmental factors to a lower tier of significance. The Rwandan study is a case in point. Diamond makes clear that environmental factors were only one contributory factor in the genocide, and that there is no automatic link between population pressure, competition for scarce natural resources, and conflict. But he ends by citing the work on Rwanda by Gérard Prunier, who comments that competition for land and livestock was not a 'negligible incentive'. Diamond concludes with the warning that 'Malthus's worst-case scenario may sometimes be realized, and that Rwanda may be a distressing model of that scenario in operation' (Diamond, 2005: 327–28). One student commented: 'I read the chapter on Rwanda, and I appreciated everything he said about other factors, but afterwards, all I could remember was that the genocide had been caused by population growth and environmental pressure.'

The emphasis on the environmental factor is also produced by the overall structure of Diamond's book. Each chapter tells a complex story in terms of the interrelations between social, political, economic and environmental factors, but the element that links them all is that the changes in the environment have been partly responsible at least for the history of each case. By placing all of these examples side by side, the reader is encouraged to identify this common thread, and to conclude that the environment is the most significant consideration. Other factors that vary from case to case become less important. This conclusion is also supported by Diamond's more explicit commentary on the role of the environment, and the way in which analysts have ignored it in recent years.

Diamond's argument thus reasserts the logic of Malthus and others that population growth, left unchecked, leads to a 'natural' chain of events: population growth leads to agricultural intensification, expansion onto marginal land, unsustainable practices and environmental damage; to food shortages, starvation, 'wars among too many people fighting for too few resources' and political upheaval; to population decrease and 'loss of political, economic and cultural complexity' (Diamond, 2005: 6). The logic of this argument has been critiqued extensively by geographers, anthropologists and others, who have, for some time now, challenged its oversimplifications. The environmental degradation narrative continues to endure, despite much evidence to the contrary, because it serves powerful interests (for a review of this critique, see Leach and Mearns, 1996). What is striking is that, despite this largely accepted critique, Diamond's reworking of Malthus has been warmly received, with the book topping the non-fiction best-selling lists. Diamond has been embraced by the geographical academy. The welcoming of Diamond's argument represents therefore a radical shift, even reversal, in perspective.

The question is why? One explanation is in the new context in which we are working: the current global environmental crisis is now so severe and pressing that Malthusian thinking, and the deterministic role of the environment, is relevant again.

In effect, the extent of the global environmental crisis has brought with it a new requirement for meta-explanations that will be able to bring about action strong enough to mitigate its effects. One danger here is that the sweeping explanation gives insufficient attention to what is happening at local scales. New epistemological violence can be done to different places and peoples as they come to symbolize and exemplify certain parts of the wider environmental storyline. The subtitle of Diamond's book is how 'societies choose to fail or survive', and the examples cited are, at times, categorized into exemplary models to emulate, or into cautionary tales. The question is, are you a Tikopia or an Iceland

(success stories), or a Rwanda or a Somalia ('ecocides')? As with the Orientalist discourse (Said, 1978), this environmental narrative works through a process of crude othering. For example, Somalia symbolizes, even epitomizes, collapse, ecocide, an inability to do anything about one's problems, apathy, and potentially our own destiny should we 'fall'; by contrast, the association between the 'first world' and a particular form of 'civilization' that must be defended is also enshrined. The details of what is happening in Somalia are not discussed, but the country is cited in the beginning and the end of the book as a warning: 'Either we solve the [environmentally related] problems by then, or the problems will undermine not just Somalia but also First World societies' (Diamond, 2005: 7). The success stories are also questionable. For example, little is known about the environment and settlement history of Tikopia prior to the twentieth century. One thing that is known, however, is that young Tikopia men set off on lone suicide voyages in fragile canoes when this 'success story' became too much for them to bear (Bayliss-Smith, personal communication). A second danger is that, if the knowledge about a place is not correct, then any policies on which they are based are likely to be inappropriate. One of the main reasons for failures of development and conservation is that policies have often been based on one-size-fits-all models, developed on a larger scale.

Despite their recognition of some of these concerns, it is also striking that student feedback remains nonetheless positive. In support of Diamond's argument, they comment that it 'brings the environment back in', 'raises awareness', 'sets the agenda' and demonstrates 'how pressing the problem of environmental change is'. One student commented: 'it identifies the choice we have. Societies that collapsed didn't have the knowledge and perspective that this book provides, and it can therefore be used to bring about change.' Many of our masters students are already committed to this agenda. Some students may also be frustrated by being given different readings (not Diamond) that stress that problems of development, including poverty, disease, food shortages and conflict, are not necessarily 'natural', technological problems or even results of a lack of economic growth, but are complex political problems about distribution, rights and access to resources. Whatever the case, the only certainty that emerges from contemporary literature is that achieving sustainable development is not easy. The current context of global climate change provides the impetus to cut through these complexities and this hand-wringing with grand theories which provide an agenda for global-scale action. Theories are contextual; and in this context Diamond's schema is seductive. What seems to be happening in Diamond's work, and elsewhere in public debate, is a new tacking backwards and forwards between the global-level environmental problem and the local situation, between the macro and the micro situation, and there is a new politics to it. The new global environmental agenda can 'trump' local processes and agendas, especially more complex political ones.

These dynamics are also evident in policy debates in development circles. One example of this is the media coverage of a UNEP report (2007) claiming that Darfur was the 'first climate change war' (Julian Borger, *The Guardian*, 28 June 2007). Ban Ki-moon, the UN Secretary-General, explained in a speech:

> Almost invariably, we discuss Darfur in a convenient military and political shorthand – an ethnic conflict pitting Arab militias against black rebels and farmers. *Look to its roots*, though, and you discover a more complex dynamic. Amid the diverse social and political causes, the Darfur conflict *began* as an ecological crisis, arising at least in part from climate change. (Ban Ki-Moon, *Washington Post* 16 June 2007, added emphasis)

What happens here is that a simplistic narrative that explains conflict in terms of 'ancient tribal enmities' between primordial groups

in Africa has been replaced with another narrative pointing to the climate change 'culprit' in which many years of political and historically informed analytical work is overlooked. De Waal's (2007) treatment of the argument concludes that environmental change *may* be a factor in the problems experienced in Darfur, but ultimately the explanations for what has happened must pay more attention to political processes, distribution of rights and the role of government. An environmental cause has yet to be proved. What is important is not to identify one factor as more determinant over the others, but to examine the way in which different factors link up and impact on each other. It is this network of causality and process that requires investigation and understanding.

In economics too, there is a new literature that tries to correlate political stability (or political effectiveness; levels of democracy) with environmental factors. In this 'resource curse' literature, global-scale analysis is carried out by comparing data from different countries to explain historical outcomes in terms of whether or not being rich or poor in natural resource terms is likely to lead to development or to chaos and conflict. Sophisticated equations demonstrate links between forms of political system and dependence on, or abundance of, natural resources (see Brunnschweiler and Bulte, 2008; Brunnschweiler, 2008). It is not easy for a non-specialist to comment on this technical work, but, even to the untrained eye, their work raises strong concerns about the data on which global and national comparisons are made. The literature acknowledges that the data are often unreliable and patchy, especially in the global South. Further assumptions are included as systems' stability or success are categorized according to broad criteria: for example, parliamentary systems are assumed to work more in the public good than presidential regimes (Brunnschweiler and Bulte, 2008). In addition, a project that draws correlations between only two factors, in this case environmental resources and political outcomes, is limited. Situations like Darfur show that there are multiple factors that influence outcomes and conflicts; many of the factors are political and historical, and they are caused by relations between countries as much as they are by relations within countries. None of these processes are accounted for in the models. This economic literature is highly influential, however, as when politics and processes are translated into numbers the models gain authority. Yet the generalized global and national pictures they portray may not have included information from certain localities, and may not fit with what is taking place there. Most notably, for example, this literature may be used to make policy in parts of Africa where the 'resource curse' theory is often thought most relevant. But some African countries are not always represented in the global-scale analysis as the data are highly inaccurate and/or often lacking.

One question posed by the call for contributions to this Forum was, should geographers engage with environmentally deterministic arguments in the public arena and other disciplines? In response to this, the Diamond material, the Darfur case and the short discussion of the economic material reveal that this environmental determinism can take different forms and has different agendas and impacts. They are forms of what Li (2002) has termed 'engaging simplifications', that capture the imagination of the public and aim to overcome apathy and change behaviour. Many applaud such arguments because they agree with the ends that they promote. But, like other engaging simplifications, they can distort realities as well as result in unintended consequences, frequently with negative impacts on the least powerful. Simplified models can give decision-makers a false sense of confidence that the problems are easy to identify and the solutions straightforward to implement. In response to this situation, geographers are in a good place to trace the more complex ways

in which environmental and other factors interrelate. Perhaps the challenge is to remain engaged with policy and to communicate research and analysis, while maintaining that engagement with complexity. The role of the academy should be to support these efforts.

Political ecology is one area of geography that focuses on unpacking the ways in which changing societies and populations intersect with changing environments. Political ecology aims to examine social, political and environmental processes, and to take into account the way in which different scales (the local, regional, national and global) interrelate. But here, too, political ecologists have been criticized for being very good at their political and Foucauldian analysis, and much less good at understanding environmental change and the role it plays (for a review, see Walker, 2005). The ascendancy of environmental-driven analysis in Diamond's and others' work has some justification. It is important to engage with environmental processes, and to explore, in more depth, the way in which the different factors interrelate. Geographers, who work with physical material processes and sociopolitical ones, ought to be leading the field in this area – tracing the way in which different scales interrelate and making space to understand and appreciate local difference and local perspectives and interests (wherever that 'local' might be, near or far). Such issues of representation and understanding are not straightforward, especially in cross-cultural contexts, and – worryingly – debates about these matters appear to have become less rather than more prominent in geographical literature in recent years.

Global climate change may be an 'inconvenient truth', but it is likely to be a significant one with untold outcomes for everyone. The full nature of its impacts requires full investigation, and policies designed to mitigate it deserve to be based on as full an understanding as possible of the circumstances on the ground, however complex such circumstances may prove. Such an understanding comes from examining and discussing different case-study examples, convenient or not. Only in this way will it be possible to trace out the varying impact of climate change with rigour, and to understand the places and communities in which different policies to address it must be based.

Elizabeth E. Watson
University of Cambridge

2 Environmental determinism in geographers' environments

Since the 19th century, the Promethean mythology (for which read 'modernism') has been dominant: the stealing of fire (for which read 'energy resources') has apparently allowed the development for humans of a world without limits. Where geographers take our clues from the natural sciences, we adopt those parts of a Promethean narrative that suggest that science-based knowledge (which many equate to control) is the key to all progress. In the social sciences many of us are heirs to myths about the perfectibility of humankind and we (nearly) all accept a myth of a cosmic hierarchy with *Homo sapiens* well above other primates, trees and rocks as a working reality: no 'deep ecology' for us (cf. Fernández-Armesto, this Forum).

I was tempted to begin — and end — this piece with the four letters 'IPCC'. For every report of that influential body is watermarked with the message that the limits of atmospheric resilience are about to be reached and that human societies have to adapt their behaviour to prevent any further stretching of the apparently fragile envelope that confines weather and climate to fluctuations with which we can cope. Such terseness would of course be frowned upon but it reminded me of the role of spatial scale. The argument is no longer about worker productivity in New England or the evolution of the epicanthic fold but about the whole planet. At some levels, even the most determined postmodernists have not challenged some of the features of the biophysical world as set out

in the laws of physics: the presence and strength of gravity, for example, or the laws regarding the conservation of energy. Maybe the part of the second law of thermodynamics that seems to govern time has been keenly scrutinized but not even Big Oil has yet announced any work on sucking back the heat from burning fossil fuels once it has reached space. Working 'inwards' from that perspective, there has arisen a view of the globe's biophysical systems as constituting a kind of envelope. Our discussions have largely been about whether this is made of a flexible material which can be pushed outwards indefinitely or whether it impinges differentially from place to place according to political or technological regimes.

Other constructions of the world often then adopt a particular spatial scale in putting forward their view of the envelope and its contents. In doing so, they also bring along factors such as the directness of the environmental processes involved: there is a clear difference between the onset of an ocean-wide tsunami and the decision to grow organic carrots; the rate of change is a different entity in the regimes of mountain glaciers versus the adoption of Green Revolution crops in the 1960s, so that there are a series of buffers between a physical force or a biological system which allow societies to mediate at the flexible ends of the directness spectrum. The human agency most involved (it is no surprise to find) has been access to energy resources that can be applied to the biophysical systems in the form of technology. Thus in energy-rich societies the buffers are strongest: as Max Frisch said, in his novel *Homo faber* (1957), 'Technology is a way of organizing the world so that man doesn't have to experience it'.

So, surrounding us all the time but impinging only from time to time and place to place there are determinist ideas and policies which come through a variety of channels as well as, occasionally, the brutal directness of a tsunami, an earthquake or a typhoon. In the social sciences the most common avenue of barely mediated concern is labelled Malthusian. There are a number of ways in which population growth is regarded with anxiety. The most social in its orientation is the way in which a given society can cope with populations that double every 20 years or so and in which there are so many young people without many future opportunities; at the inflexible end of the thinking is the underlying notion (derived mostly from ecological science) of carrying capacity. There may be, it is argued, a finite limit to the number of humans that can be fed or watered or kept from each others' throats, and that limit is a consequence of the biophysical character of the planet mediated through a number of feedback mechanisms. Even as I write (June 2008), the FAO has been having 'crisis' meetings, a fact related to the oil prices hitting US$130 that same month. After the UN Population Conference in Cairo in 1994 it was rather un-PC to mention Malthus, but I think his ghost is now showing itself again well beyond the streets of Bath, in whose Abbey his memorial is affixed. This on-and-off attention span is indicative of the way in which many topics that feed into a complex discussion seem like temporary crystallizations in flows of energy, matter and ideas, rather than the hard-edged lumps of thinking that dominate any account that is in writing.[2]

Yet, to be repetitive, the climate professionals are the most direct inheritors of the radical environmentalist school of thought which has swirled around and through the western world since the 1960s. Even though the mode of transmission is that of the 'greenhouse gases', the message is clear: adapt to the carbon flows of the planet or else suffer unpredictable fluctuations of amplitude of climate and weather. The more optimistic responses, such as those of Bjorn Lomborg, argue that the situation is negotiable and that money be spent on adapting to rapid change rather than trying to prevent it: in other words to deny the existence of limits to human societies (Lomborg, 2001). To read

the material of the more environmentalist end of the spectrum, and to see the almost desperate attempts of many media to foster ways by which to lower our individual carbon footprints is perhaps to acknowledge that radical environmentalism has been a carrier of western Puritanism and that its proponents have a little more in common with the Taleban than they would care to admit. But how long will this last? Media attention spans are notoriously short and 'democratic' governments are always wary of which voters they might offend. Evoking Puritanism, at any rate in the western world, brings us back into the sphere of myth.

The Promethean myth is not dead: ideas of hi-tech carbon sequestration beneath the oceans, deserts covered with solar panels and sun-reflecting mirrors in space are the heirs of the hollow stalk, as is the nuclear fusion power which is always, it seems, 40 years into the future. Most Greek legends have episodes of hubris followed by those of nemesis and environmentalists sometimes point to the uncomfortable time that Prometheus spent chained to a rock and having his liver pecked out by a vulture. So this myth has something for everybody, including perhaps the story that Zeus eventually freed Prometheus. It seems the case that the concatenation of Geography with other constructions of the world is beset with myths, even though we all choose to dress them up in other verbal clothing. In such a context the appearance of environmental determinism is perhaps like a snake in a burrow – you don't see much of it but from time to time it whips out and bites you; or maybe it is like that vulture, soaring way above and thus ignored until nemesis produces some corpses.

Ian Simmons
University of Durham

Part II: Questioning the notion of human culture versus the environment

The chimpanzees' tea party was a spectacle I often enjoyed on childhood outings to the zoo. Now my generation recalls it with embarrassment, and even self-loathing, as politically incorrect and injurious to chimpanzees' dignity. The chimps sat at a table laden with teatime paraphernalia and foodstuffs, and entertained the crowd by making a mess. According to one of the world's leading experts on chimpanzee behaviour, they probably deliberately hammed up the performance (de Waal, 2002: 52). We onlookers, however, thought it funny – though we may not have expressed it thus – because we thought that humans were uniquely cultural animals, and that chimps' efforts to imitate our table manners were vitiated by a fundamental inability to understand what manners were. Now the joke is on us, because half a century of research has taught us that we are not alone in possessing culture, and that chimpanzees are among a number of non-human cultural creatures: practitioners, that is, of behaviours that are socially but not practically functional and are neither instinctive nor advantageous in an evolutionary sense. Rather, they are transmitted by tradition and acquired by learning (de Waal, 2001; de Waal and Tyack, 2003; Hurley and Nudds, 2006; on dolphins, see also Pryor and Norris, 1991; Mann *et al*., 2000).

So humans are not uniquely cultural. There is, however, a conspicuous respect in which humans still seem peculiar. Other animals' cultures remain more or less static, whereas those of humans are highly mutable – even volatile. A huge question arises, perhaps the biggest question the social sciences (broadly defined, including history and human geography) are called on to answer or at least address: why do human cultures, alone of those of cultural animals, change so much? The question seems – some might say, threatens – to replace history with natural history and human agency with the vast impersonal forces of environment and evolution.

It is reasonable – one might almost say natural – to look to environment or evolution for explanations. But, as I tried to show in one of my books, widely divergent societies

have often taken shape in similar or identical environments (Fernández-Armesto, 2001). Environment changes at rhythms very different from, and generally much slower than, those observable in culture. Although there are occasional cases, such as large-scale volcanic eruptions or the sudden evolution of a new and powerful micro-organism, when the rhythms of environmental and cultural change coincide, these are too infrequent to account for all the lurches of culture. So, although we can accept, as a matter of common sense, that environment influences culture, we can set it aside as a source of direct explanation for the innumerable variations in human cultures that arise over time.

Evolution, too, is bound to be part of any picture of cultural behaviour, because, although we humans may transcend it, we have always to start from the point to which it has brought us. All cultural animals are products of evolution and whatever disposes them to cultural behaviour must be part of the equipment with which evolution has furnished them. The search for a link between evolution and culture has a long history (for a good account, see Durham, 1991). Here I want to address only two currently fashionable doctrines – forms of determinism, rooted in scientific traditions concerning evolution, which have helped to shape current or recent debate: first, the argument that cultures are collections of evolved individuals, whose inherited characteristics determine what happens to human communities; second, the claim that cultures, or 'units' of which culture is said to be composed, behave in ways so closely analogous to organisms as to conform to evolutionary rules – evolving, for instance, by selection of environmentally successful variations or by way of competition between 'units' of culture, self-replicated like genes. I want to suggest that neither of these doctrines is helpful.

The evidence that some non-human animals have culture began to pile up in the early 1950s, when investigators in Japan observed a now famous macaque monkey instructing her tribe in her newly discovered technique of washing the dirt off sweet potatoes before eating. Subsequent generations learned how to do it and continue the tradition – with some modifications – to this day. Proof that the practice is a rite rather than a crudely useful function is that the monkeys will always do the washing, even if humans deliver the vegetables ready-cleaned, as if in a supermarket (de Waal, 2002: 51). Since the discovery of macaque culture, innumerable cultural practices have been detected in many species of apes and monkeys and also, according to investigators in the field, in elephants, dolphins and rats. In some cases, there is evidence of cultural divergence among communities of a single species. In some baboon tribes, for instance, males practise monogamy; in others, they have harems. Different chimpanzee communities have different technologies; some hunt quite intensively (Stanford, 1998), whereas others do not. In different places, orang-utans play different games. Yet it remains true to say that cultural divergence – which is an index of the scale and rate of cultural change – is very small in non-human species, compared with the immense diversity of human cultures.

To express the problem another way, it would be otiose to attempt to write histories of the societies of any cultural creatures except humans. Even chimpanzees, who are in just about every respect the creatures most closely comparable to humans, hardly have any history. They have politics, which the great analyst of chimp political science, Frans de Waal, has characterized as Machiavellian (de Waal, 1986: 19). But, although one alpha male from time to time successfully displaces another, the nature of authority in chimpanzee communities never changes. It would be rash to say that it never could change. One of the most curious episodes observed by researchers in Tanzania was of a chimp low down the ranking among the males of his tribe who for a time successfully challenged the leaders' dominance by rolling packing cases, appropriated from the primatologists'

camp, across his rivals' favoured tracks through the forest. At first, the incumbents were inclined to defer to him in their puzzlement; but his coup did not last long and no permanent revolution occurred in the distribution of power or in the way in which chimpanzee leaders emerge. Nonetheless, it is tempting to see in this incident evidence both of how limited the range of chimpanzee political culture is compared to that of humans and of how the distance might be narrowed in the future (Goodall, 1990; Wrangham *et al*., 1994). We no longer have alpha males running our societies as, presumably, our hominid ancestors once did. We have replaced challenge and combat, which still prevails among chimpanzees, with other means of selecting leaders, by charisma, sacrality, heredity, sagacity, demagogy. But among chimpanzees it is already possible for an individual to attain temporary ascendancy by an innovative strategy. Over time, new kinds of political change could become systematic in chimpanzee societies, as in our own.

Meanwhile, humans are the only species with history. But this form of human distinctiveness has accrued over time. It is not 'natural' to humans in the sense of having been a feature of human life since *Homo sapiens* first emerged. On the contrary, as far as we can tell, for most of our existence, our species has been culturally stable – in key respects as unchanging as other species. The earliest divergences we can attribute to human cultures arose as a result of the migration of *Homo sapiens* out of our native environment in east Africa, about 100,000 years ago. Those divergences were consequences of the need to adapt to new and previously unexperienced environments, which produced, for instance, variants in dress and foraging techniques, and of the sheer distances that arose between increasingly sundered communities. I suspect that separation by distance must have stimulated linguistic divergence, which – to judge from the huge differences in language today between contiguous peoples in Australia and New Guinea, who in other respects resemble each other closely in culture – must have been an early form of societies' mutual differentiation. Even so, the differences between widely dispersed peoples in the palaeolithic era were small, by recent standards, and not much greater than that of many other primates. If art is the mirror of society, the rate of change in palaeolithic cultures was minimal. The recent discovery of cave paintings at Chauvet, some 10,000 years older than previously known examples of the genre, reveals startling continuity in subjects, techniques and treatment (Clottes, 2001).

So the peculiar mutability of human society has its origins not in 'human nature' – whatever that is – but in the circumstances of the relatively recent past. The increasing pace of change, moreover, is not an inherent property of change, but a historical phenomenon. It has occurred – for the most part – within a relatively well-known and relatively well-documented period, which can be said to have coincided roughly with the Holocene, and to have quickened spectacularly in the last few centuries.

The critical gap between human and non-human cultural species therefore demands a peculiarly human explanation. Evolution seems generally too slow-working a mechanism to meet the case. Even the syncopations of 'punctuated equilibrium' are too slow and too rare. We can measure the pace of human evolutionary divergence in our DNA (Jorde *et al*., 1998); the results do not stand comparison with the cultural divergence historians record (Berry, 2002: 265–73). Culture, moreover, seems un-Darwinian because it is a story of the survival of the unfittest. Evolution has delivered, as far as we can tell, no increase in the duration of species. So we should not demand that it deliver more durable cultures. Nonetheless, we have to take account of the fact that the most adaptive cultures are not the fittest for survival, but the most prone to catastrophe. A system which – independently of human choice – imposed cultures equipped to survive would select for foraging. Cultures which

have stuck to that strategy have survived for scores of millennia, whereas those that have substituted sedentarism, urbanization, agriculture and all the other adaptations we associate with 'civilization' are one with Nineveh and Tyre. The societies we class as least evolved – least complex, least developed, with fewest parts – are those that endure longest, while elaborate civilizations collapse. Our adaptations bear the fingerprints of free will precisely because, so far, just about all of them have been unsuccessful (Fernández-Armesto, 2001). Their increasing pace looks like a measure of increasing desperation.

The only serious attempt to solve this problem – the theory of memes (Dawkins, 1976: 202–15) – is of little appeal, not least because there is no evidence for the existence of memes, in the sense of evolved 'units' of culture, or of any mechanism analogous to heredity, by which evolution could select them for transmission to other cultures. According to Richard Dawkins, who first described memes and invented the name, a meme is a 'replicating entity' and 'a cultural trait [that] may have evolved in the way that it has, simply because it is *advantageous to itself*' (Dawkins, 1976: 206, 214, original emphasis) – not to the people or society who adopt it. It would be inconsistent with Dawkins's concept even to speak of memes being 'adopted' in any sense that implies conscious adoption – rather they colonize their host societies, somewhat as parasites infest bodies. This is a doubly unsatisfactory doctrine. First, it requires another set of explanations to account for why different traits achieve different levels of social influence: it is easy to accept, for instance, that genes for brown eyes should prevail over those for blue eyes in a body where both are inherited; but the same mechanisms cannot explain why, say, Islam should prevail over Christianity in a society with access to both (Smail, 2008: 96–97). Second, elements of culture have, in the imaginary world of the meme, no way of emerging except by a form of self-replication reminiscent of spontaneous generation: innovations occur by way of random mutation, rather than as a result of human inventiveness. Even Dawkins finds this an unsustainable way of thinking about culture, crediting Socrates, Leonardo, Copernicus and Marconi with 'contributions' of 'meme-complexes' commendable for their longevity. This gets close to saying that human minds originate cultural traits – which is what everyone's experience suggests. If that is so, it is unnecessary to endow memes with a life of their own. Humans think them up in the first place; so humans can adopt them and reject them as they wish.

Indeed, what Dawkins calls cultural traits can all fairly be represented as ideas, because everything else he includes – technologies, techniques, tunes, teachings – do not appear on earth fully formed or leap from culture to culture except, in the first instance, as purely mental facts, communicated between minds. Even in the case of an artifact which arrives by trade or chance in a milieu where it is unfamiliar, and spreads by being copied, it is not effectively transmitted from its culture of origin to its host culture unless and until a recipient conceives an idea of it. Cultural changes, in other words, originate in the realm of ideas. I do not mean to assert that the mind – or, to focus on exactly what I mean by 'mind' in the present context, the capacity for generating ideas – is unaffected by evolution. As far as we can tell, our capacity for thought is itself a product of evolution and, if it is true – as we suppose, on the basis of our present knowledge – that humans have an exceptional capacity for generating ideas, evolution should have played some part in endowing us with it.

As a working hypothesis, I propose that ideas are a byproduct of a well-equipped imagination, which in turn is a product of a well-developed power of anticipation. Evolution selects for anticipation, especially in the case of hunting animals, who need to be able to anticipate the behaviour both of prey and of rival predators, often in environments which occlude the senses. *Homo sapiens*

needs a relatively rich imagination to make up for the feebleness of body, slowness of gait and weakness of sight and smell that disadvantage us as hunters. This, I suspect, is why humans have so many more ideas than other primates, who resemble us so closely in so many other respects, but who rarely or never eat meat and who typically do not go hunting. Now that some chimpanzee communities have taken this step and have embraced the ecology of hunters, I think it is unfanciful to speculate that their trajectory of change could eventually draw closer to ours, as hunting becomes more important in their economies, evolution responds accordingly, and chimps get ever more imaginative.

However that may be, the link between ideas and cultural change is unproblematic. We observe our world. We imagine it differently. We work to realize our imagined world. But this still leaves the increasing pace of cultural change unexplained. If I am right so far, ideas need to multiply in order for cultural change to accelerate. The best-attested reason for the multiplication of ideas is the fertilizing effect of exchange. Ideas multiply as the result of dialogue. That is why we are here, talking to one another. Cultures change, in part, at least, because unfamiliar ideas about how to do things impinge from outside. For example, the work of Jared Diamond has made familiar the notion that Eurasia has been an arena of faster change than other parts of the world because its geography favours intense exchanges of culture between its indigenous civilizations (Diamond, 1997: 354–75 ff.). Isolation retards change, exchange stimulates it.

This helps us understand why for so much of the human past cultural change was so slow – barely exceeding, as we have seen, the rate of change in other cultural species. The story of our past has been, for most of the time, one of divergence, as human communities migrated across the globe and in many cases lost touch with one another. Such cultural changes as occurred during the period of divergence are largely explicable in terms of adaptations to the different environments human migrants encountered. Subsequently, at first very gradually or fitfully, as sundered communities re-established contact, ideas oscillated with increasing frequency across newly established frontiers, generating or contributing to the generation of accelerating change (Fernández-Armesto, 2006). Among the changes were projects for extending the reach of exploration and exchange, and technologies to effect them: striking examples of re-imaginings of the world, realized in practice. The beginning of a new, and so far relatively short, period of convergence therefore coincided with a quickening of change of all kinds. The most marked feature of the very recent past – which we call globalization – is, from one point of view, intensified exchange. To put it crudely, change grows out of exchange (Fracchia and Lewontin, 2002). The more exchange, the more change. Intercultural contacts do not just reshake the kaleidoscope of the world; they also multiply the crystals it contains.

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Part III: Engaging with the politics of determinist environmental thinking

> History is real simple. (Rush Limbaugh, quoted in Nash *et al.*, 2000: 6)

The paradox that neo-environmental determinism has apparently convinced so many despite its fatal epistemological and empirical flaws suggests the need to treat it as part of the process of underdevelopment rather than as pop science in need of debunking. Debunking certainly poses no great challenge because environmental determinism's lack of engagement with complex historical processes in favor of making simplistic categorical associations mimics the major epistemological defect of racism, sexism, and other determinisms (Sluyter, 2005). A propensity for fallacious empirical claims further undermines neo-environmental

determinists' conclusions (Sluyter, 2003). That they nonetheless enjoy some credibility thus remains largely inexplicable except as an initial effect of a weakening of the nature/society divide that has long defined the foundational structure of modernism (Sluyter, 2002: 215–27). Interminable debunking and philosophical speculation, however, have come to seem less useful than treating neo-environmental determinism as an object of analysis in research on underdevelopment, much as political ecologists have already studied the roles of racism, sexism, and Orientalism in that phenomenon (Sluyter, 1999). Such an analysis would at a minimum need to focus on how neo-environmental determinism has supplanted racism as the major pop explanation for underdevelopment and on how neo-environmental determinism emerges in and impacts particular sites of underdevelopment, including universities.

Neo-environmental determinism certainly seems to have supplanted racism as the major pop science explanation for underdevelopment. In general terms, that brand of racism essentializes peoples of non-European origin as forever incapable of creativity and productivity or, at best, as requiring a long colonial apprenticeship before achieving the capacity for independence and development. In an effort to supplant such ideas, the author of one of the best-known neo-environmental determinist books on underdevelopment actually claims he wrote *Guns, germs, and steel: the fate of human societies* as a counter-argument to racism (Diamond, 1997: 18–25). Ironically, racist and environmental determinist explanations of underdevelopment share so many key characteristics that they complement rather than counter each other. Both ignore colonial and (post)colonial processes, with Diamond ending *Guns, germs, and steel* some five centuries ago, just as the dichotomy between the developed and underdeveloped worlds was beginning to emerge. Both instead emphasize supposedly innate characteristics, genetic in one case and geological in the other. Diamond's (1997: 376–401) attempt to explain African underdevelopment thus differs from the racist one he claims to counter only by retreating from genetic determinants to environmental ones, most basically the relatively small surface area and meridional orientation of that continent. Thus, he argues, Africa's blackness has not determined its underdevelopment; instead, its environment has determined both its blackness and its underdevelopment. Racism and neo-environmental determinism, then, equally obfuscate the historical processes that explain underdevelopment in favor of correlating racial or environmental categories to ones of wealth and power, eliding the possibilities for constructive change that begin with acceptance of social responsibility and come to fruition through restructuration of social relations.

Given that racist and environmental determinist arguments play the same obfuscating role, the replacement of the former by the latter must involve a response to some sort of dynamism in the process of underdevelopment itself. One possible source relates to the diasporas of (post)colonial peoples that began during the cold war: Algerians to France, Indonesians to the Netherlands, Indians to the UK, Cubans and other Latinos to the USA, and so on. US Census 2000 provides one measure of the scale of that phenomenon: 35.3 million people self-identified as Hispanic or Latino, already by then 12.5% of the total population and projected to grow to 30% by 2050 (Therrien and Ramirez, 2000). Such (post)colonial migration contrasts markedly with that of the 1800s and early 1900s, when European groups such as Irish, Italians, and Germans comprised the largest ethnic minorities in the USA. In addition to underdeveloped countries having replaced European ones as the main sources of migrants, Europe itself has become a destination, a role previously filled largely by its settler colonies such as the USA. Moreover, migrants have increasingly become transnational in that they maintain

persistent connections to their origin communities through remittances, circular migration, and voting (Davis, 2000).

As (post)colonial underdevelopment processes have relocated ever larger numbers of African, Latin American, and Asian workers toward developed countries, the racist obfuscation of underdevelopment has become counterproductive to neoliberal policies. Characterizing immigrants as racially incapable of creativity and productivity would alienate them rather than co-opt them as voters, workers, and consumers. Even characterizing them as requiring long tutelage before becoming productive seems inane give the many recruited directly into the high-tech industries of Europe and the USA.

Neo-environmental determinism provides neoliberals with a strategic revision of the racist obfuscation by shifting the supposed cause of underdevelopment from people to environment, from genes to geology. Latinos living in the USA can thereby be producers and consumers of value-added goods while their countries of origin remain underdeveloped suppliers of raw materials and cheap labor because of presumed environmentally deficiencies. Neo-environmental determinism thus maintains the obfuscations of racism but with the added benefit of facilitating the vast transfer of skilled labor and mass consumption from the underdeveloped world to the developed world while maintaining their existing political-economic relations.

Beyond elaborating understanding of that global context, a political ecology of neo-environmental determinism would have to focus on particular sites of underdevelopment, including universities. Given the part that academics have played in revising racism into neo-environmental determinism, universities might actually be the most pertinent sites of all. Political ecologists can in that sense begin to treat universities much as they do the African villages, Amazonian forest preserves, international development organizations, or biotech corporations that they typically study. Each such site provides a different type of entry into the process of underdevelopment, and even sites such as university departments that seem far removed from the negative social and environmental effects on the ground in Africa or Asia might yield an essential explanatory element.

In his latest book, *The university in chains*, Henry Giroux (2007) provides some insight into how neoliberals have secured academic sanction for an obfuscating explanation of underdevelopment that facilitates avoidance of democratic accountability for social and environmental destruction. As a point of departure, he uses Dwight Eisenhower's final speech as US President, when on 17 January 1961 he warned of the 'acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex' (Eisenhower, quoted in Giroux, 2007: 14). But Giroux extends that complex to include universities, terming it the military-industrial-academic complex. In part his insights into that extended alliance derive, as do my own, from experiences while a member of the faculty at the Pennsylvania State University, commonly known as Penn State (Giroux, 2007: 107–108). During the 1950s, Milton Eisenhower, Dwight's brother, served as president of Penn State and used his Pentagon connections to establish that university as a major defense contractor. That process marked the campus landscape with the secretive Applied Research Laboratory, the Breazeale Nuclear Reactor, and the Garfield Thomas Water Tunnel, used to design submarine hulls and torpedoes.

Now, as Giroux demonstrates, the pressures on academics to adopt the obfuscating explanations that serve neoliberal policy have never been greater. His analysis ranges from quantifying sources of research funding to textual deconstruction, and draws three compelling conclusions. First, the military-industrial-academic complex has over the past two decades drawn in many more universities than those such as Penn State that established strong connections to the

Department of Defense during the cold war. Second, that process threatens the democratic foundations of US society. Third, academic faculty and students can counter that process through critical research, teaching, and learning.

With his focus on cultural studies and critical pedagogy, Giroux does not directly address the emergence of neo-environmental determinism at universities, but he does point political ecologists toward the sorts of questions that will lead to greater understanding of that phenomenon and therefore the processes of underdevelopment. To illustrate, we can use Diamond once again. As a biologist, he lacks the expertise to study underdevelopment; his research on that topic therefore lacks methodological and empirical rigor, and he consequently has to publish it as popular science rather than in refereed, scholarly journals. Why under those circumstances would UCLA, putatively an intellectual meritocracy dedicated to rigorous scholarship and education, appoint him as a professor of geography?[3] Who approved that appointment and who resisted? Who benefited from it and how? Who invited him to present the opening plenary at the 2007 Association of American Geographers meeting? Who promoted that choice and who resisted it? Who benefited from it and how? Does Diamond's new status as a geographer, conferred by some at UCLA and endorsed by others at the AAG, influence the reception of his arguments in academic disciplines beyond geography, in government, and among the general public? Does that status influence the adoption of neo-environmental determinism within and beyond the discipline of geography or deepen the intellectual chasm between its physical and human component parts (Sluyter *et al.*, 2006)? Will nature/society research within and beyond geography become less rigorous and capable under the influence of neo-environmental determinism, resulting in increasingly poorer rather than better understandings of underdevelopment?

Giroux also provides political ecologists with guidance on the sorts of data and analysis available to answer such questions. Such research should involve deconstruction of the minutes of meetings recovered from the archives of academic societies and university departments; of speeches and papers by neo-environmental determinists; of their books; and of syllabi in geography and other disciplines. It should include analysis of the distribution of positive and negative book reviews as well as of citation patterns across different disciplines and nationalities. It should include participant observation of the military-industrial-academic complex to, for example, determine the prevalence of neo-environmental determinist thinking among military clients of academic geographers (Potter and Sluyter, 2007). And, of course, it should follow the money.

If political ecologists are to understand neo-environmental determinism as part of the process of underdevelopment, engaging such questions about our own universities becomes as necessary as research on conservation policy in Africa, genetically modified soybeans in South America, or soil erosion in Asia.

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Notes

1. However, there are also parallels between earlier environmental determinisms and today in terms of imperial geopolitics (cf. Peet, 1985; Godlewska and Smith, 1994), and a concern to celebrate the 'local' (culture or ecology) in the face of homo-genization and/or destruction.
2. With the possible exception of poetry perhaps: let us have some new anthologies of 'green' poetry that go beyond the scenery-and-flowers surfaces.
3. I completed this essay about half a year before the news broke that some of the native peoples Jared Diamond has used in his publications are now suing him for libel, a development that has prompted more geographers to begin asking how he ever gained the credibility to write about underdevelopment given him by a faculty position in a geography department and plenary lectures at the AAG meetings (the 20 April 2009 court summons is available at

www.stinkyjournalism.org/misc/Mandingo_and_Wemp_vs_Advance_Publications_and_Jared_Diamond.pdf, last accessed 1 June 2009).

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